Phonons In Nanostructures

Theory of phonons in nanostructures for researchers, graduate students and undergraduates in physics and engineering.This book focuses on the theory of phonon interactions in nanoscale structures with particular emphasis on modern electronic and optoelectronic devices. The continuing progress in the fabrication of semiconductor nanostructures with lower dimensional features has led to devices with enhanced functionality and even novel devices with new operating principles. The critical role of phonon effects in such semiconductor devices is well known. There is therefore a great need for a greater awareness and understanding of confined phonon effects. A key goal of this book is to describe tractable models of confined phonons and how these are applied to calculations of basic properties and phenomena of semiconductor heterostructures. The level of presentation is appropriate for undergraduate and graduate students in physics and engineering with some background in quantum mechanics and solid state physics or devices. A basic understanding of electromagnetism and classical acoustics is assumed. EAN/ISBN : 9780511031878 Publisher(s): Cambridge University Press Format: ePub/PDF Author(s): Stroscio, Michael A. - Dutta, Mitra

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